SECTION 1

WATER QUALITY ASSESSMENTS UNDER SECTION 305(b)

This section describes the basic components of a water quality assessment including degree of use support, causes (pollutants and other stressors), and sources of impairment. It also explains several concepts that may have resulted in inconsistencies in the past, such as the fully supporting but threatened category, presumed assessments, and natural sources.

1.1 What is an Assessment?

In setting their water quality standards, States assign one or more designated uses to each individual waterbody. Designated uses are beneficial uses that States want their waters to support. Examples are aquatic life support, fish consumption, swimming, and drinking water supply. Under Section 305(b), assessment of an individual waterbody (e.g., a stream segment or lake) means analyzing biological, habitat, physical/chemical, and/or toxicity data and other information to determine

- The degree of designated use support of the waterbody (fully supporting, fully supporting but threatened, partially supporting, or not supporting)
- If designated uses are impaired, the causes (pollutants or other stressors) and sources of the problem
- Degree of achievement of biological integrity using State biological criteria or other measures.
- Descriptive information such as the type and quality of data used in the assessment.

Figure 1-1 illustrates how monitoring, assessment, and reporting are related for an individual waterbody. Figure 1-2 shows actual assessment results for a waterbody.

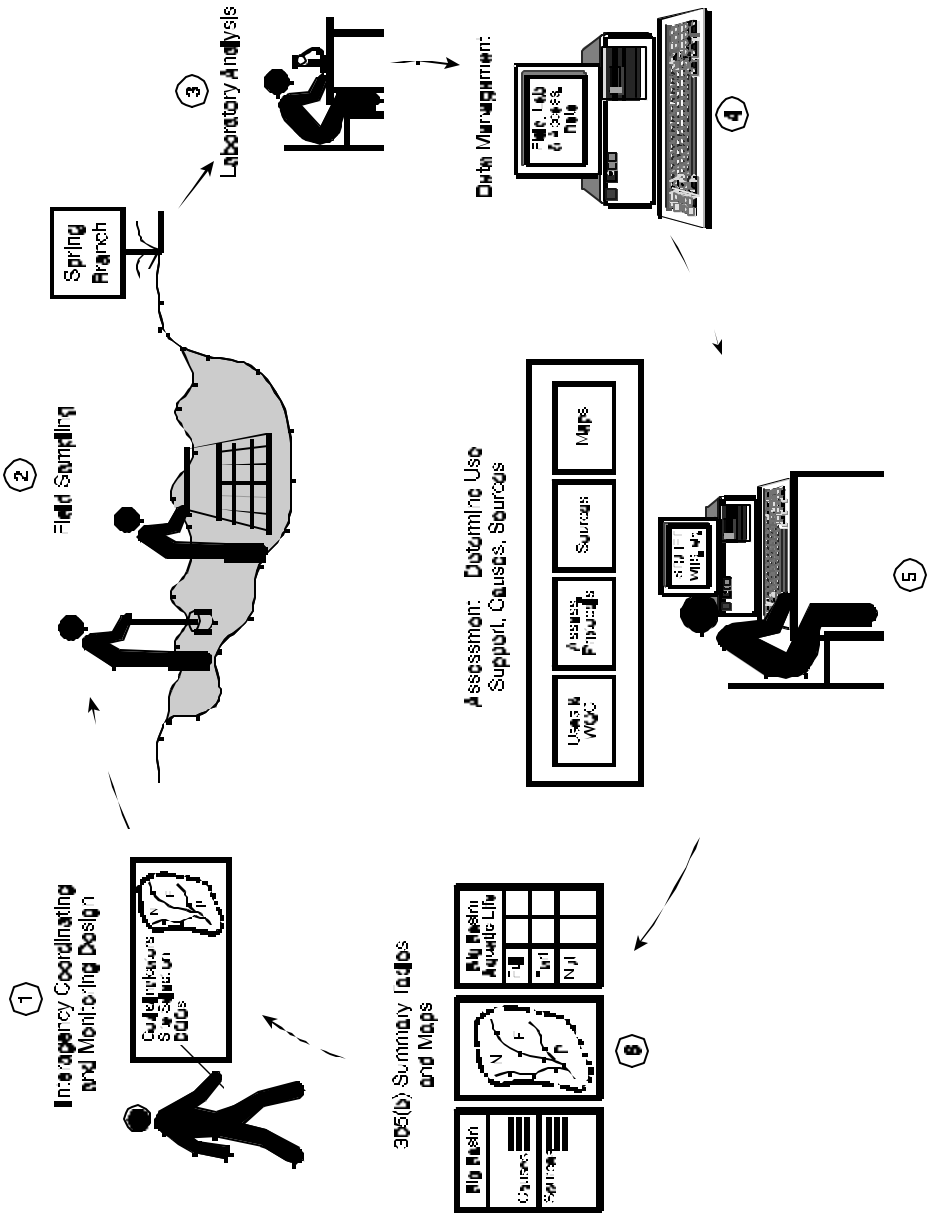


Figure 1-1. Monitoring, assessment and 305(b) reporting as an interrelated process

figure not available in WordPerfect format

Figure 1-2. Waterbody System printout summarizing assessment results for a waterbody

1.2 Degree of Use Support

Each designated use has its own requirements for a finding of fully supporting, fully supporting but threatened, partially supporting, or not supporting. **Section 3 of this *Guidelines Supplement* gives EPA's detailed recommendations for determining the degree of use support for various designated uses.**

Throughout these *Guidelines*, the term "impairment" means either partially supporting or not supporting a designated use.

The category "fully supporting but threatened" requires further explanation. A waterbody is fully supporting but threatened for a particular designated use when it fully supports that use now but may not in the future unless pollution prevention or control action is taken because of anticipated sources or adverse pollution trends. Such waters are treated as a separate category from waters fully supporting uses. States should use this category to describe waters for which actual monitoring or evaluative data indicate an apparent declining water quality trend (i.e., water quality conditions have deteriorated, compared to earlier assessments, but the waters still support uses). States may also choose to include waters for which monitoring or evaluative data indicate potential water quality problems requiring additional data or verification.

Fully supporting but threatened is not appropriate during temporary impairment of designated uses (e.g., due to a construction project in a watershed). The threatened category may be appropriate prior to anticipated impairment, but while actual impairment is occurring, partial support or nonsupport should be reported.

Summarizing Assessment Results in the Report to Congress

EPA uses the following descriptive terms in graphical presentations of degree of designated use support:

Good Water Quality	=	Fully Supporting or Fully Supporting but Threatened
Fair Water Quality	=	Partially Supporting
Poor Water Quality	=	Not Supporting

Note: Impaired means Partially Supporting or Not Supporting (Fair or Poor)

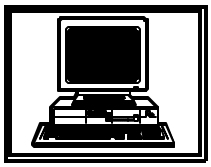
1.3 Types of Assessment Information

Each State reports assessments of those waterbodies for which use support decisions can be based on reliable water quality information. Such assessments are not limited to waters that have been directly monitored -- it is appropriate in many cases to make judgments based on other information (see Section 1.4). Waterbodies assessed prior to the current reporting period can be included in 305(b) reports if the State has the technical basis to conclude that the assessment results are still valid. **It is not appropriate, however, to claim that waterbodies are fully supporting uses by default in the absence of sufficient information to make an assessment (see also Section 1.5).**

If statistical survey (probability) designs are used, the results can be reported relative to the entire resource (e.g., headwater streams in an ecoregion), not just those waterbodies actually monitored.

Table 1-1 lists categories of information for assessments. These Assessment Type Codes are from the EPA Waterbody System (WBS). They provide a wealth of information about the basis for individual assessments.

Assessment Database Managers—For 1997 and beyond, EPA is strongly encouraging the use of Assessment Type Codes in WBS and other State assessment data systems. They are important data elements for annual electronic updates (see Section 6 of the main *Guidelines* volume).



1.4 Monitored and Evaluated Waters

EPA asks the States to distinguish between assessments based on monitoring and assessments based on other information.

- "Evaluated waters" are those waterbodies for which the use support decision is based on information other than current site-specific ambient data, such as data on land use, location of sources, predictive modeling using estimated input variables, and some questionnaire surveys of fish and game biologists. *As a general guide*, if an assessment is based on older ambient data (e.g., older than five years), the State should also consider it "evaluated."

Table 1-1. Assessment Type Codes from the Waterbody System

100	**Qualitative (evaluated) assessment--unspecified**[a]
110	Information from local residents
120	Surveys of fish and game biologists/other professionals
130	Land use information and location of sources
140	Incidence of spills, fish kills, or abnormalities
150	Monitoring data that are more than 5 years old
175	Occurrence of conditions judged to cause impairment (e.g., channelization, dredging, severe bank erosion)
180	Screening models (desktop models; models are not calibrated or verified)
190	Biological/habitat data extrapolated from upstream or downstream waterbody
191	Physical/chemical data extrapolated from upstream or downstream waterbody
200	**Physical/chemical monitoring**[b]
210	Fixed-station physical/chemical monitoring, conventional pollutants only
211	Highest quality fixed-station physical/chemical monitoring, conventional pollutants; frequency and coverage sufficient to capture acute and chronic events, key periods, high and low flows
220	Non-fixed-station physical/chemical monitoring, conventional pollutants only
222	Non-fixed-station monitoring, conventional, during key seasons and flows
230	Fixed-station physical/chemical monitoring, conventional plus toxic pollutants
231	Highest quality fixed-station physical/chemical monitoring, conventional plus toxicants; frequency and coverage sufficient to capture acute and chronic events, key periods, high and low flows
240	Non-fixed-station physical/chemical monitoring, conventional plus toxic pollutants
242	Non-fixed-station physical/chemical monitoring, conventional plus toxicants, during key seasons and flows
250	Chemical monitoring of sediments
260	Fish tissue analysis
270	Community water supply chemical monitoring (ambient water)
275	Community water supply chemical monitoring (finished water)
300	**Biological monitoring**[b]
310	Ecological/habitat surveys
315	Regional reference site approach
320	Benthic macroinvertebrate surveys
321	RBP III or equivalent benthos surveys
322	RBP I or II or equivalent benthos surveys
330	Fish surveys
331	RBP V or equivalent fish surveys
340	Primary producer surveys (phytoplankton, periphyton, and/or macrophyton)
350	Fixed-station biological monitoring

Table 1-1 (continued)

360 Habitat assessment
365 Visual observation, usually at road crossings; professional not required
370 Visual observation, use of land use maps, reference conditions, professional not required
375 Visual observation, may quantify some parameters; single season typically; by professional
380 Quantitative measurements of instream parameters, channel morphology, floodplain; one or two seasons; by professional

400 Pathogen monitoring[b]
410 Shellfish surveys
420 Water column surveys (e.g., fecal coliform)
430 Sediment analysis
440 Community water supply pathogen monitoring (ambient water)
450 Community water supply pathogen monitoring (finished water)

500 Toxicity testing[b]
510 Effluent toxicity testing, acute
520 Effluent toxicity testing, chronic
530 Ambient toxicity testing, acute
540 Ambient toxicity testing, chronic
550 Toxicity testing of sediments

600 Modeling[c]
610 Calibrated models (calibration data are less than five years old)

700 Integrated intensive survey[b] (field work exceeds one 24-hour period and multiple media are sampled)
710 Combined sampling of water column, sediment, and biota for chemical analysis
720 Biosurveys of multiple taxonomic groups (e.g., fish, invertebrates, algae)

Assessments Based on Data from Other Sources

800 Assessments based on data from other sources[c]
810 Chemical/physical monitoring data by quality-assured volunteer program
820 Benthic macroinvertebrate surveys by quality-assured volunteer program
830 Bacteriological water column sampling by quality-assured volunteer program
840 Discharger self-monitoring data (effluent)
850 Discharger self-monitoring data (ambient)
860 Monitoring data collected by other agencies or organizations (use the assessment comment field to list other agencies)
870 Drinking water supply closures or advisories (source-water quality based)

Table 1-1 (continued)

Discrepancy in Aquatic Life Assessment Results[d]

900	**Discrepancy in Aquatic Life Assessment Results**
910	Discrepancy among different data types; aquatic life assessment is based on physical/chemical data
920	Discrepancy among different data types; aquatic life assessment is based on biological data
925	Discrepancy among different data types; aquatic life assessment is based on habitat data
930	Discrepancy among different data types; aquatic life assessment is based on toxicity testing data
940	Discrepancy among different data types; aquatic life assessment is based on qualitative (evaluated) assessment data

[Note: New codes have been added to include information types in Tables 3-2 and 3-3.]

[a] Generally considered to be evaluated assessment types.

[b] Generally considered to be monitored assessment types.

[c] Considered to be monitored or evaluated assessment types depending on data quality and State assessment protocols.

[d] States are requested to use these codes to identify cases when biological, habitat, toxicity, and/or physical/chemical data show different assessment results.

- "Monitored waters" are those waterbodies for which the use support decision is principally based on current, site-specific, ambient monitoring data believed to accurately portray water quality conditions. Waters with data from biosurveys should be included in this category along with waters monitored by fixed-station chemical/physical monitoring or toxicity testing. To be considered "monitored" based on fixed-station chemical/physical monitoring, waters generally should be sampled quarterly or more frequently. For specifics on biological monitoring, see Section 3.

States may use some flexibility in applying these guidelines. For example:

- For the 800 series of codes in Table 1-1, if State-approved quality assurance/quality control procedures have been applied to volunteer monitoring programs, waters sampled under these programs could be considered monitored. However, a State may use its discretion in making an Assessment Category determination of evaluated vs. monitored. The State may wish to conduct a comparison to determine the sensitivity or power of the volunteer method compared to the State's methods (e.g., volunteer data may prove more useful for identifying severe impacts than for determining full support). Note: EPA has developed *The Volunteer Monitor's Guide to Quality Assurance Project Plans*. To obtain a copy, contact the Monitoring Branch at (202) 260-7018.

- If older ambient data exist for high-quality waters located in remote areas with no known pollutant sources, and if those data are believed to accurately portray water quality conditions, those waters could be considered monitored.

EPA and States have been working together to better define the kinds of data upon which assessment decisions are made. See Tables 3-1 through 3-4.

1.5 Presumed Assessments

The 305(b) Consistency Workgroup determined that presumed assessments are unacceptable. Examples of presumed assessments are

- Assuming that waterbodies are fully supporting by default unless there is information to the contrary

- Extrapolating assessments from one waterbody or watershed to others unless they have very similar characteristics

- Extrapolating the "percentage of assessed stream miles that are fully supporting" to all streams in the State without adequate scientific basis such as probability-based monitoring design.

Note: If waterbodies are monitored using survey designs, results can be extrapolated.

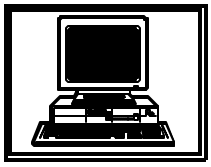
EPA encourages States to report on all waters for which there is a reasonable technical basis for evaluation. A reasonable basis could include a judgment that a stream is not supporting uses based on channelization, a highly disturbed watershed, or data from nearby streams with similar characteristics.

In addition, EPA recommends that data from a single monitoring station not be used to generate a monitored assessment of an entire watershed. Rather, a monitoring station can be considered representative of a waterbody for that distance upstream and/or downstream in which there are no significant influences to the waterbody that might tend to change water quality within the zone represented by the monitoring station. See Section 2.1.

1.6 Causes of Impairment (Pollutants and Other Stressors)

Causes of impairment are those pollutants and other stressors that contribute to the impairment of designated uses in a waterbody. In the remainder of these *Guidelines* the term "cause/stressor" is used. Table 1-2 lists cause/stressor codes from the WBS. States can also add their own codes to WBS to track additional causes. At the States' request, EPA has added new subcategories under Code 0500 and Code 0900 to track specific metals and nutrients.

How to Avoid Double-counting of Causes/Stressors



WBS Users—If you use the new subcategories for metals/nutrients or add cause/stressor codes to WBS, *you must enter a total size for each major category of causes/stressors (the **bold categories** in Table 1-2; e.g., **0500--Metals or 0200--Pesticides**) for each waterbody.* This is necessary because there may be overlap among the subcategories of causes/stressors.

Non-WBS Users—Like WBS, most customized waterbody-level databases must also track a total size for each major category of causes/stressors (the **bold categories** in Table 1-2) in order to avoid overlap among subcategories.

Table 1-2. Cause/Stressor Codes from the Waterbody System

0000	**Cause Unknown**	**1000**	**pH**
0100	**Unknown Toxicity**	**1100**	**Siltation**
0200	**Pesticides**	**1200**	**Organic Enrichment\Low Dissolved Oxygen**
0300	**Priority Organics**		
0400	**Nonpriority Organics**		
0410	**PCBs**	**1300**	**Salinity/Total Dissolved Solids/Chlorides/Sulfates**
0420	**Dioxins**		
0500	**Metals**	**1400**	**Thermal Modifications**
	0510 Arsenic	**1500**	**Flow Alterations**
	0520 Cadmium	**1600**	**Habitat Alterations (other than flow)**
	0530 Copper		
	0540 Chromium	**1700**	**Pathogens**
	0550 Lead	**1800**	**Radiation**
	0560 Mercury	**1900**	**Oil and Grease**
	0570 Selenium	**2000**	**Taste and Odor**
	0580 Zinc	**2100**	**Suspended Solids**
0600	**Ammonia (un-ionized)**	**2200**	**Noxious Aquatic Plants (native macrophytes)[a]**
0700	**Chlorine**		
0720	**Cyanide**	**2210**	**Excessive Algal Growth/ Chlorophyll a**
0750	**Sulfates**		
0800	**Other Inorganics**	**2400**	**Total Toxics**
0900	**Nutrients**	**2500**	**Turbidity**
	0910 Phosphorus	**2600**	**Exotic Species**
	0920 Nitrogen		
	0990 Other		

NOTES: In addition to the above, WBS users can enter their own customized cause codes. See WBS Users Guide.

Codes 0200 through 0800 are toxicants for purposes of WBS reports.

Filling and draining is considered a source (Source Code 7800) and no longer appears in the above table.

Bold type indicates a major cause category; regular type indicates a subcategory.

[a]Non-native plants should be handled under Category 2600.

In Table 1-2, bold type indicates a major cause/stressor category and regular type indicates a subcategory. **See the highlight box entitled "How to Avoid Double-counting of Causes/Stressors" regarding the importance of storing size data for major cause/stressor categories, not just subcategories.**

1.7 Sources of Impairment

Sources are the activities, facilities, or conditions that contribute pollutants or stressors resulting in impairment of designated uses in a waterbody. Table 1-3 lists source codes from the WBS. States can also add their own source codes to the WBS. Appendix G provides definitions of selected source categories.

In Table 1-3, bold type indicates a major source category and regular type indicates a subcategory of that major category. **See the highlight box entitled "How to Avoid Double-counting of Sources" regarding the importance of storing size data for all applicable major source categories, not just subcategories.**

Determining the sources of designated use impairment can be a difficult process. Ambient monitoring data can give good evidence of the causes of impairment. In some cases, field observations can provide information on obvious, nearby problems; e.g., land use, substrate, and habitat may provide a basis for identifying sources. This is especially the case for "hydromodification" sources.

In most cases, additional information is needed--watershed land use inventories, records of permit compliance, locations of areas with highly erodible soils, areas with poor best management practice (BMP) implementation, measurements of in-place contaminants, or loadings from atmospheric transport or ground water.

Assessment Database Managers—Agriculture is the only source category with three tiers of codes (see Table 1-3). EPA asks States to track size data for the "1000—Agriculture" code and at least the next tier ("1050—Crop-related Sources", etc.)

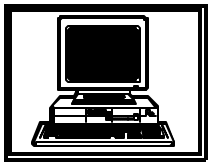


Table 1-3. Source Categories (with National Codes from the Waterbody System)

0100 Industrial Point Sources
- 0110 Major Industrial Point Sources
- 0120 Minor Industrial Point Sources

0200 Municipal Point Sources
- 0210 Major Municipal Point Sources—dry and/or wet weather discharges
- 0212 Major Municipal Point Sources—dry weather discharges*
- 0214 Major Municipal Point Sources—wet weather discharges*
- 0220 Minor Municipal Point Sources—dry and/or wet weather discharges
- 0222 Minor Municipal Point Sources—dry weather discharges*
- 0224 Minor Municipal Point Sources—wet weather discharges*
- 0230 Package Plants (Small Flows)

0400 Combined Sewer Overflow

0500 Collection System Failure*

0900 Domestic Wastewater Lagoon

1000 Agriculture**
- **1050 Crop-related Sources***
  - 1100 Nonirrigated Crop Production
  - 1200 Irrigated Crop Production
  - 1300 Specialty Crop Production (e.g., horticulture, citrus, nuts, fruits)
- **1350 Grazing-related Sources***
  - 1400 Pasture grazing—Riparian and/or Upland
  - 1410 Pasture Grazing--Riparian*
  - 1420 Pasture Grazing--Upland*
  - 1500 Range Grazing—Riparian and/or Upland
  - 1510 Range Grazing--Riparian*
  - 1520 Range Grazing--Upland*
- **1600 Intensive Animal Feeding Operations***
  - 1620 Concentrated Animal Feeding Operations (CAFOs; permitted, PS)
  - 1640 Confined Animal Feeding Operations (NPS)
  - 1700 Aquaculture

2000 Silviculture
- 2100 Harvesting, Restoration, Residue Management
- 2200 Forest Management (e.g., pumped drainage, fertilization, pesticide application)
- 2300 Logging Road Construction/Maintenance
- 2400 Silvicultural Point Sources

Table 1-3 (continued)

3000 Construction
- 3100 Highway/Road/Bridge Construction
- 3200 Land Development

4000 Urban Runoff/Storm Sewers
- 4100 Nonindustrial Permitted
- 4200 Industrial Permitted
- 4300 Other Urban Runoff
- 4400 Illicit connections/illegal hook-ups/dry weather flows*
- 4500 Highway/Road/Bridge Runoff*
- 4600 Erosion and Sedimentation*

5000 Resource Extraction
- 5100 Surface Mining
- 5200 Subsurface Mining
- 5300 Placer Mining
- 5400 Dredge Mining
- 5500 Petroleum Activities
- 5600 Mill Tailings
- 5700 Mine Tailings
- 5800 Acid Mine Drainage
- 5900 Abandoned mining*
- 5950 Inactive mining*

6000 Land Disposal
- 6100 Sludge
- 6200 Wastewater
- 6300 Landfills
- 6350 Inappropriate Waste Disposal/Wildcat Dumping*
- 6400 Industrial Land Treatment
- 6500 Onsite Wastewater Systems (Septic Tanks)
- 6600 Hazardous Waste
- 6700 Septage Disposal

7000 Hydromodification
- 7100 Channelization
- 7200 Dredging
- 7300 Dam Construction
- 7350 Upstream Impoundment
- 7400 Flow Regulations/Modification

Table 1-3 (continued)

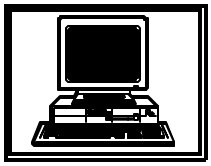
7550	**Habitat Modification (other than Hydromodification)**
7600	Removal of Riparian Vegetation
7700	Bank or Shoreline Modification/Destabilization
7800	Drainage/Filling of Wetlands
7900	**Marinas and Recreational Boating***
7910	In-water releases*
7920	On-land releases*
8050	**Erosion from derelict land***
8100	**Atmospheric Deposition**
8200	**Waste Storage/Storage Tank Leaks (above ground)**
8250	**Leaking underground storage tanks***
8300	**Highway Maintenance and Runoff**
8400	**Spills (Accidental)**
8500	**Contaminated Sediments**
8520	**Debris and bottom deposits***
8530	**Internal nutrient cycling (primarily lakes)***
8540	**Sediment resuspension***
8600	**Natural Sources**
8700	**Recreation and Tourism Activities (other than Boating; see 7900)**
8710	Golf courses*
8900	**Salt Storage Sites**
8910	**Groundwater Loadings**
8920	**Groundwater Withdrawal**
8950	**Other**
9000	**Unknown Source**
9050	**Sources outside State Jurisdiction or Borders***

Notes:
Bold type indicates a major source category; regular type indicates a subcategory.
In addition to the above codes, WBS users can enter their own customized source codes.
Code 8000 for "Other" has been deleted because it resulted in significant loss of detail nationwide.
See Appendix G for definitions of selected source categories.

* Codes changed or added since 1996 Guidelines.

** Agriculture is the only major source category with three tiers of codes (such as codes 1000, 1050, and 1100). EPA asks States to report size data for the "1000—Agriculture" code plus one or both of the other two tiers.

How to Avoid Double-Counting of Sources



WBS Users—WBS can be used to generate the 305(b) summary report, "Total Sizes of Waters Impaired by Various Source Categories." *However, to use the WBS to generate this table, enter a total size for each major category of sources (i.e,, the* ***bold categories*** *in Table 1-3 such as* ***1000--Agriculture*** *and* ***2000--Silviculture****).* This is necessary because there may be overlap among the subcategories of sources.

Non-WBS Users—Your customized database must also track major source categories (the **bold categories** in Table 1-3) at the waterbody level.

A modeling framework can be helpful, especially where a variety of sources could be involved. Even a simple annual average export-coefficient screening model can help determine if particular source categories are significant contributors to impairment. A well-rounded assessment process, therefore, might involve monitoring, an inventory of land uses and point source contributions for a watershed, and, where appropriate, a screening-level model to rank and prioritize the relative impacts of different source categories.

Appendix H lists types of information that can be used to determine sources of water quality impairment.

Natural Sources

The Natural Sources category should be reserved for waterbodies impaired due to naturally occurring conditions (i.e., not caused by, or otherwise related to, past or present human activity) or due to catastrophic conditions. In the past, some States have used natural sources as a catch-all category for unknown sources. This gives an inaccurate picture of the extent of natural sources at both State and national levels. States should use the natural sources category only for clearly defined cases, including:

- Saline water due to natural mineral salt deposits
- Metals due to naturally occurring deposits
- Low dissolved oxygen (DO) or pH caused by poor aeration or natural organic materials, where no human-related sources are present or where impairment would occur even in the absence of human activity

- Excessive siltation due to glacial till or turbidity due to glacial flour, where such siltation is not caused by human activity or where impairment would occur even in the absence of human activity

- Habitat loss or pollutant loads due to catastrophic floods that are excluded from water quality standards or other regulations

- High temperature, low DO, or high concentrations of pollutants due to catastrophic droughts with flows less than design flows in water quality standards.

The Natural Sources category does **not** include, for example, low flows due to diversions resulting in low DO; drainage from abandoned mines resulting in low pH; stormwater runoff resulting in habitat destruction, high temperatures, or other impacts except under catastrophic conditions; or atmospheric deposition of heavy metals where human-induced emissions are a factor.

In many cases, State water quality standards already take into account natural conditions (e.g., a “fish and wildlife/swamp waters” classification in the Southeast where naturally-occurring low DO is allowed). In such cases, the waterbody is not reported as impaired. In other cases where standards do not allow for natural conditions, impairment by a natural source may still be beyond a State's capability to correct for technical or economic reasons. A use attainability analysis (UAA) should be done to determine if designated uses are attainable or if other uses are more appropriate for a waterbody. Regional Water Quality Standards Coordinators can provide information on conducting UAAs. In the absence of a UAA, EPA recognizes that States should report impairment due to natural sources even in cases where standards could be overly restrictive or in need of revision.

1.8 Cause/Source Linkage

States are requested to link causes/stressors with sources for waterbodies in their assessment databases where possible. A special cause/source link field is provided in WBS for this purpose. Linked cause/source data are important for answering State resource management questions. For example, the question "Which waterbodies are impaired due to nutrients from agricultural runoff?" cannot be answered if the cause/source link is not used.

The following chart illustrates what happens when causes and sources are not linked. Although valuable information is stored, one cannot tell which sources are associated with which pollutants or stressors:

Causes and Sources Not Linked

Waterbody	Causes (pollutants/stressors)	Sources (not linked with causes)
WBID = XX-012 Mill Creek above Brook Branch	Nutrients, siltation, thermal modification	Urban runoff, removal of riparian vegetation, municipal point sources

The following chart shows how the same causes and sources can be associated with each other using the WBS link variable:

Causes and Sources Linked

Waterbody	Causes (pollutants/stressors)	Sources (linked with causes)
WBID = XX-012 Mill Creek above Brook Branch	Nutrients	Urban runoff
	Nutrients	Municipal point sources
	Siltation	Removal of riparian vegetation
	Thermal modification	Urban runoff
	Thermal modification	Removal of riparian vegetation

For help in accomplishing this link, WBS users and non-WBS users are urged to contact WBS Technical Support at the number on page ii for more information.

1.9 Major/Moderate/Minor Contribution to Impairment

Section 4 of the main *Guidelines* volume requests determination of the relative contribution to impairment of causes and sources of pollution.

The definitions of major/moderate/minor contributions in these *Guidelines* now reflect the severity of impairment rather than the number of sources contributing. The 1994 definitions, for example, required that a source be labeled "major" if it is the only source of impairment on a waterbody, regardless of the severity of impairment. The current definitions are:

- Major contribution: A cause/stressor or source makes a major contribution to impairment if it is the only one responsible for *nonsupport* of any designated use or it predominates over other causes/sources.

- Moderate contribution: A cause/stressor or source is the only one responsible for partial support of any use, predominates over other causes/sources of partial support, or is one of multiple causes/sources of nonsupport that have a significant impact on designated use attainment.

- Minor contribution: A cause/source is one of multiple causes/sources responsible for nonsupport or partial support and is judged to contribute relatively little to this nonattainment.

The major/moderate/minor designations are difficult to quantify and will continue to reflect the best professional judgment of the data analyst. For example, multiple minor causes/stressors or sources or multiple moderate causes/sources could be interpreted to add up to nonsupport. States are asked to clarify how they use magnitude codes in their annual electronic reporting data dictionaries.